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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,965

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EXAMINER

MOK, ALEX W

ART UNIT

PAPER NUMBER

2834

MAIL DATE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/577,965	<b>Applicant(s)</b> URBACH ET AL.	
	<b>Examiner</b> ALEX W. MOK	<b>Art Unit</b> 2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 August 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 23-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 23-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### *Amendment*

1. Acknowledgement is made of Amendment filed August 4, 2008.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 3, 4, 6, 12-16, 18-20 and 23-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al. (US Patent No.: 4710795), and further in view of Wolf et al. (WIPO document No.: WO 01/27997) and Biswas et al. (US Patent No.: 5213748).

For claim 1, Nippert et al. teach the claimed invention comprising an electronic unit (reference numeral 1, figure 1) with a sandwich construction, which contains a first electrically conductive substrate and a second electric conductive substrate (reference numerals 2, 3), between which power components (reference numerals 5, 10) are located and electrically connected to both substrates, and a side of the second substrate facing away from the first substrate is equipped with additional electronic components (reference numeral 9), wherein the first substrate is a punched grid (see figures 5, 6). Nippert et al. does not specifically teach the substrate being punched from a metal material, nor the substrates being extrusion coated with and encapsulated by a

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plastic body produced by injection molding in such a way that extensions of the punched grid protrude from the plastic body, and forming an electrical and/or mechanical interface for connecting additional motor components.

Wolf et al. disclose substrates having a layer of plastic (reference numeral 90, figure 3a), and having extensions (reference numeral 51, 52, figure 1a).

It would have been obvious modify the reference of Wolf et al. and have the plastic body coat the substrate and also have the extensions protrude from the plastic body, since the invention of Wolf et al. is related to electronic modules, and a person of ordinary skill would have been able to apply this configuration for the purpose of directly attaching additional components to the unit. It also would have been obvious to have the substrate punched from a metal material, and the substrate encapsulated by a plastic body produced by injection molding, since Biswas et al. disclose a package assembly having a leadframe composed of sheet copper being punched (see column 5, lines 2-9) and the leadframe being encapsulated by plastic that is injected into a mold (column 5, lines 64-66), and a person of ordinary skill in the art would have been able to include this for directly attaching motor components to the unit.

For claim 3, it would have been obvious to have the extensions be contact points to external components, since Wolf et al. disclose these components (reference numerals 51-56, figures 1a-4), and a person of ordinary skill would have been able to include this for the same reasons given for claim 1 above. The reference of Wolf et al. also discloses copper for this component (see column 5, lines 40+ of US equivalent of Wolf et al. (US Patent No. 6697257)).

For claim 4, it would have been obvious to have clips for accommodating carbon brushes, since the reference of Nippert et al. discloses clips for connecting to the substrate (see column 1, lines 12-21), and it also would be within the knowledge of a person skilled in the art to connect components to an electronic unit such as a clip for carbon brushes.

For claim 6, it would have been obvious to form holding elements on the punched grid, since Nippert et al. disclose a similar component for the holding element (reference numeral 12, figure 1), and a person of ordinary skill would be able to include this in the claimed invention for the purpose of holding power components for producing proper electrical connections for the punched grid.

For claim 12, it would have been obvious to have a conductively adhesive surface for the power components and have solder bumps on the substrate since Nippert et al. already disclose conductive surfaces and soldering for components (column 4, lines 40-50, and column 5, lines 32-35), and a person of ordinary skill would have been able to modify the configuration and have bumps for the purpose of better connection conductively.

For claim 13, it would have been well within the knowledge of a person skilled in the art to have MOSFETs on the module since MOSFETs are well known power components in the art and a skilled person can simply select this component to include on the unit.

For claims 14 and 15, it would have been obvious to arrange power components on the substrate and also to have the substrates be heat sinks, since Nippert et al.

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already disclose heat sinks on the substrate (see column 3, lines 19-25), and a person of ordinary skill would have been able to arrange the power components since arranging components is a routine skill, and also could modify the heat sinks of Nippert et al. so that the substrates can also be heat sinks for the purpose of saving space on the unit and further reduce the costs.

For claim 16, it would have been obvious to have the plastic body be formed by transfer molding with epoxy flowing between the substrates, since Wolf et al. disclose transfer molding for the substrates (see US 6697257, column 2, lines 39-44), and a person of ordinary skill would have been able to use this process for the plastic body for the purpose of effectively filling the gaps in a bubble-free manner and also protecting the components.

For claim 18, it would have been obvious to have the plastic body arranged on a separate module support and fixed by clips, since this would simply separating the plastic body taught by Wolf et al. and a person of ordinary skill could apply the clip connection disclosed by Nippert et al. (column 1, lines 12-21) for the purpose of minimizing the cost of additional parts and processes.

For claim 19, when the electronic unit taught by the references of Nippert et al. and Wolf et al. as explained above for claim 1 is implemented in an electric motor for adjusting parts of a motor vehicle, it would be well within the knowledge of a person of ordinary skill in the art to have the electronic unit be mounted in a particular way, such as radially from a shaft and opposite from a commutator, for the purpose of receiving optimal performance from the unit with respect to the arrangement of the motor.

For claim 20, the references of Nippert et al., Wolf et al. and Biswas et al. disclose the claimed electronic module as explained for claim 1 above.

For claim 23, it would have been obvious to have the punched grid formed from a copper sheet by means of punching, bending and embossing, since Biswas et al. disclose this configuration (column 5, lines 2-9), and it would have been obvious to include this for the reasons given for claim 1 above.

For claim 24, Nippert et al. already teach the segments as illustrated in figures 5 and 6, and since the references of Nippert et al., Wolf et al. and Biswas et al. teach the structure of the substrates as explained for claim 1, a person of ordinary skill would have been able to form these segments using any method such as punching.

For claims 25-27, it would have been obvious to have the plastic molding compound of the plastic body be arranged in gaps and voids between the substrates and the power components, the plastic molding compound of the plastic body encapsulate the punched grid, the second substrate, the power components, and the electronic components, and cover the side of the second substrate and a side of the punched grid facing away from the second substrate, since all of these configurations would involve rearranging the location of the plastic molding compound component which is recognized as being a routine skill. A person of ordinary skill in the art would have been able to apply this technique for the purpose of improving the electrical and thermal performance of the motor.

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4. Claims 2 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claim 1 above, and further in view of Azotea et al. (US Patent No.: 6060795).

For claim 2, the inventions of Nippert et al. and Wolf et al. teach the claimed invention except for the extensions having bore holes. Azotea et al. disclose holes on a power module (see figures 1, 4A-4C). It would have been obvious to include holes in the inventions of Nippert et al. and Wolf et al., since this configuration would further enable additional components to be stably attached to the unit.

For claim 10, it would have been obvious to have ceramic for the substrate, a conductor layer, and have them connected through holes, since the reference of Wolf et al. disclose ceramic for the substrate (column 6, lines 23-29), conductor tracks (column 6, lines 23-37), and a person of ordinary skill can apply the holes disclosed by Azotea et al. to connect these components for the purpose of saving space of the electronic unit.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claim 1 above, and further in view of Satoh et al. (US Patent No.: 6274955).

For claim 5, it also would have been obvious to have the extensions be made of an electro-magnetic shielding material, since it has been held that selecting a material for a particular component would be a routine skill in the art, and also the reference of Satoh et al. discloses a similar configuration for a vibration motor (see column 14, lines 48-55).



6. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claims 1 and 3 above, and further in view of Pickles et al. (US Patent No.: 5697811).

For claim 7, it would have been obvious to have contact points be interfaces using nip-clinch technology, since Pickles et al. already disclose nip-clinch connectors (see Abstract), and a person of ordinary skill would have been able to apply this known method for the purpose of having a cost-effective method of joining components.

7. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claim 1 above, and further in view of Giacomini et al. (US Patent Application Pub. No.: US 2003/0080772 A1).

For claim 8, it would have been obvious to have a microprocessor and a position sensory mechanism as electronic components on the substrate, since Giacomini et al. uses sensors and microprocessors in an electronic module (see paragraph [0052]), and a person of ordinary skill could apply this for the purpose of combining different technologies in one module to further reduce costs.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claim 1 above, and further in view of Viswanathan et al. (US Patent Application Pub. No.: US 2003/0128080 A1).

For claim 9, it would have been obvious to have an electrically conductive surface for the substrate, and have the electronic components equipped by means of soldering or conductive adhesion using flip-chip technology, since Nippert et al. already disclose the substrate having a conductive surface (column 4, lines 39-50) and components being fixed using soldering (column 5, lines 32-34), and Viswanathan et al. uses flip-chip technology for an electronic module (see paragraph [0022]), and a person of ordinary skill would have been able to include this technique for the purpose of reducing substrate space and further reduce costs.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claim 1 above, and further in view of Feygenson et al. (US Patent No.: 6440750).

For claim 11, it would have been obvious to have the power components be bare die elements, since Feygenson et al. disclose bare die elements for a module (see column 17, lines 5-8), and a person of ordinary skill in the art would have been able to apply this without a housing for the purpose of taking up less construction space for the module.

10. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nippert et al., Wolf et al. and Biswas et al. as applied to claim 1 above, and further in view of Weber et al. (US Patent No.: 6317332).

For claim 17, it would have been obvious to have the plastic body be extrusion coated with another plastic, since Weber et al. disclose extrusion coating for a electronic module (see column 6, lines 20-30), and a person of ordinary skill would have been able to use this for the purpose of forming the housing cover for the unit.

### ***Response to Arguments***

11. Applicant's arguments with respect to claims 1-20 and 23-27 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX W. MOK whose telephone number is (571)272-9084. The examiner can normally be reached on 7:30-5:00 Eastern Time, 1st Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen P. Leung can be reached on (571) 272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Alex W. Mok  
Examiner  
Art Unit 2834

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